

Appl. No. 09/519,129
Amdt. dated August 14, 2003
Reply to Office action of February 14, 2003

REMARKS

Reconsideration is respectfully requested.

Claims 1 and 8 are amended herein. New claims 12-17 are presented.

The Examiner has rejected claims 1, (7/1), 8 and (10-11/8) under U.S.C. 102(b) as allegedly being anticipated by Brady et al. (U.S. 5,328,546), in view of Keane et al. (U.S. 4,478,932), and Senga et al. (U.S. 4,502,677). Applicants respectfully traverse.

Claim 1 has been amended to clarify the distinctions between applicant's invention and the references relied upon by the Examiner. Applicants respectfully traverse the Examiner's rejection. Brady punches rolled sheets of film into photoresist decals, then the decals are transported on a transport tape to an assembly area where they are peeled from the transport tape and bonded to a wafer. Claim 1 as amended includes the wording "iteratively positioning ones of said sheet-cut form of hologram recording photosensitive film adjacent ones of said substrate".

In Brady's device a plurality of decals are moved continuously toward the assembly area because the decals are on a continuous tape. Iterative movement as claimed by amended claim 1 is not possible with Brady device. Iterative movement of this form is not even suggested by Brady. One skilled in the art attempting to develop a process which minimizes dust and

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debris from entering the lamination environment would not learn from the Brady reference that feeding pre-cut ones of laminates removes the possibility that debris will come from the cutting process. Only applicants' invention teaches this inventive aspect. Brady offers no suggestion to prevent debris, from the punching operation, from being transported to the lamination area on the transport tape with the decals. With applicants to show the importance of iterative loading of ones to the lamination section one can see in hindsight that Brady's placement of the feed spool 42 so far from the lamination roller 46 shows no recognition by the prior art to control all means by which dust and debris may reach the lamination step.

Keane et al teaches a process of making a printed circuit using dry film resists (Col. 5 Lines 46-51) that "can be cut into any desired shape and stacked, or formed into rolls with or without a peelable protective film . . . The resist film thus remains usable for short periods of time (two days to several weeks)". The skilled artisan would again miss applicants' inventive arrangement and not appreciate how to minimize debris in the lamination environment. The Keane process would not teach the artisan the importance of applicants' inventive steps which include "releasing said separator from said fed ones of said sheet-cut form.." after being positioned "adjacent said ones of a substrate" and before being laminated thereto (Claim 1) or

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"said separator arranged to protect said film" before then the separator is released (Claim 8).

Senga et al teaches a method for feeding recording sheet materials. Plural units of the Senga recording sheet materials 2 are housed in a tray 1 separated by spacer papers 3 (see figs 1-3). The recording sheets 2 overhang the spacer papers 3 on one side, and the spacer papers 3 overhang the recording sheets on the opposite side where they are pinned in place with holding rod 4. Spacer papers 3 never leave the tray 1. The recording sheets are pulled from the tray 1 by a suction chuck 5 and fed into carrying rolls 6. Senga et al does not teach or suggest providing process steps which are gentler to the recording material which applicants' process and system as disclosed and claimed do. The applicants claim a separator for protecting ones of films positioned as ones adjacent a substrate and then laminated thereto.

Without applicants to provide the invention as described and claimed the skilled artisan would be left with a mere aggregate of processes, but not applicants' inventive process and system.

The Examiner has rejected claims 1, (7/1), 8 and (10-11/8) under U.S.C. 103(b) as allegedly being unpatentable over Brady et al. (U.S. 5,328,546), combined with Keane et al. (U.S. 4,478,932), and Senga et al. (U.S. 4,502,677), further in view of Ueda (JP 09-054539) and Smith et al (U.S. 3,779,778).

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Regarding Ueda, applicants note that the presently claimed invention is based somewhat on this patent. The Ueda document is characterized by layer arrangement at the photographing. The present invention relates, above all, to the method and the apparatus for removing dust and film debris, and is characterized by the process and the apparatus.

Also, applicants would like to restate comments regarding the Ueda reference from our last response, that the Ueda (JP-09-0954539) is described in the background of the invention of the present application, and that, as the Examiner mentions, the process in the reference may be done by hand. The present invention overcomes the production issues that became apparent with the Ueda process described in JP-09-54539.

As discussed hereinabove, with the Brady, Keane and Senga references before him the skilled artisan would not arrive at applicant's invention as claimed. With the Ueda reference included, film defects would still result with the fictitious aggregate of processes taught by the prior art.

The Examiner states Smith et al '778 teaches that for dry film resists various materials may be used as supports and that these supports may be provided with antihalation, anchor or adhesive materials. The Examiner is correct that Smith teaches this, but Smith's main teaching is compositions and their preparations. The teaching of Smith are also inadequate to overcome the shortcomings of the prior art, and don't help one

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achieve applicants' goal of providing a hologram-recording fabrication process and system to fabricate hologram-recording dry plates best suited for applications where high precision and high cleanliness are required. Even in combination with all the other references cited the skilled artisan would not arrive at applicants' invention. Only by following the processes steps, or the system set forth in claim 1, or claim 8, or the respective refinements thereto in claim 7 or 10-11 will the skilled artisan be able to achieve the goal.

The Examiner has rejected claims 1, 2, (7/1,2), 8-11 under U.S.C. 103(b) as allegedly being unpatentable over Brady et al. (U.S. 5,328,546), combined with Keane et al. (U.S. 4,478,932), and Senga et al. (U.S. 4,502,677), in view of Garber (U.S. 4,464,221) and Platzer et al. (U.S. 5,269,873). Applicants respectfully traverse.

The Garber document relates to an apparatus for automatically laminating photo-resist. However, Garber does not describe the use of pre-cut films as disclosed by the present invention.

Garber and Platzer if combined with the other references cited would not yield applicant's invention as claimed in claims 1, 2, (7/1,2), 8-11 either. The Examiner seems to allege Garber '221 can be applied to help the skilled artisan arrive at applicant's inventive step of laminating with the substrate and the hologram-recording photosensitive film vertically supported.

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However, Garber's use of an L-shaped member 64 having a backing plate 70 slanted at 10 degrees from the vertical to hold plural panels 62, misses an important inventive aspect that the applicants have not missed. Please see Col 7 lines 36-39 "the backing plate 70 is slanted 10° counterclockwise from the vertical direction, as shown, so that the panels 62 will stay stably in place...". Photoresist dry film 52 is unwound from a supply roll 18. When the film 52 is extended past the lamination station 22 it is cut by knife 24. Applicants' process and system as disclosed and claimed employs pre-cut film. The skilled artisan would not look to Garber disclosure which includes a continuous film and a cutting operation and arrive at applicant's device using pre-cut film. Even if Garber's cutting step were absent, the jostling around of the plural panels 62 on the L-shaped member 64 would create small quantities of debris from the rubbing together thereof. Please see Col. 7 lines 29-31, "L-shaped member 64 that is positioned for forward and aft movement or actuation on the flat surface or table 66".

Platzer et al '873 provides an apparatus for peeling off a film laminate on a carrier material which requires little horizontal space and does not require the use of an adhesive tap or element to perform the peeling. Its relation to applicants' invention is only the feature of peeling off the separator.

Consideration of this reference would not help the skilled

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artisan either. Applicant process and system requires only that the separator is released from the film prior to lamination with the substrate. Platzer et al provides nothing to help, even if combined with all the other references.

The Examiner has rejected claims 1-11 under U.S.C. 103(b) as allegedly being unpatentable over Brady et al. (U.S. 5,328,546), combined with Keane et al. (U.S. 4,478,932), and Senga et al. (U.S. 4,502,677), Garber (U.S. 4,464,221) and Platzer et al. (U.S. 5,269,873) further in view of Ueda (JP 09-054539) and Smith et al (U.S. 3,779,778).

As discussed before with regard to these references, without applicants to provide the invention as described and claimed the skilled artisan would be left with a mere aggregate of processes, but not applicants' inventive process and system. Applicants' process and system as claimed provides a higher level of cleanliness and production automation heretofore unrealized.

The Examiner holds that the limitations of claims 10 and 11 are considered intended use as the means for handling these films and the films are not described as part of the apparatus. The Examiner appears to imply claims 10 and 11 could be in condition for allowance if the film were added as part of the apparatus limitations. Claim 8 is amended accordingly, and it is therefore believed that these claims are in allowable condition.

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New claims 12 and 13 are added which each include the limitation that the film has a side being vacuum-attractable by a sucking means and convertible by a conversion means to a position accessible to said separation releasing means.

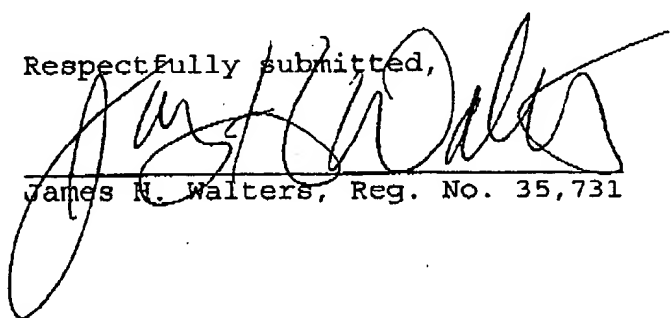
We also present new claim 14 which include the film and substrate as part of the apparatus limitations for your approval, and claims 15 and 16 which include concepts presented in claims 10 and 11. New claim 17 is also presented.

Claim 7 is amended to remove the multiple-multiple dependent claim aspects, and new claims 18-21 are added to represent the various dependent claim relations of original claim 7, but not in multiple-multiple dependent form.

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In light of the above noted amendments and remarks, this application is believed in condition for allowance and notice thereof is respectfully solicited. The Examiner is asked to contact applicant's attorney at 503-224-0115 if there are any questions.

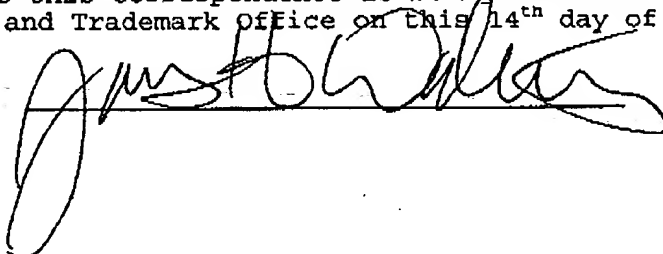
Respectfully submitted,


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